***United States Army Alaska Regulation 40-5**

DEPARTMENT OF THE ARMY
HEADQUARTERS, UNITED STATES ARMY ALASKA
Fort Richardson, Alaska 99703-5000

United States Army Alaska Regulation 40-5 **30 April 1997**

Medical Services

Cold Injury Prevention

Summary. This regulation concerning cold injury prevention has been revised. This regulation covers individual and leader responsibilities concerning cold injury preventive measures. This regulation also discusses cold weather injury first aid and reporting requirements. This revision reflects the change to United States Army Alaska (USARAK).

Applicability. This regulation applies to all units and activities within and attached to USARAK.

Impact on New Manning System. This regulation does not contain information that effects the New Manning System.

Supplementation. Supplementation of this regulation is prohibited without prior approval from the 1st Brigade, 6th Infantry Division (Light), Brigade Surgeon Office, APVR-WLB-CO.

Interim changes. Interim changes to this regulation are not official unless the director of Information Management authenticates them. Users will destroy interim changes on their expiration dates unless sooner superseded or rescinded.

Suggested improvements. This regulation's proponent agency is the 1st Brigade, 6th Infantry Division (Light), Brigade Surgeon Office. Users are invited to send comments and suggested improvements on Department of the Army (DA) Form 2028 (Recommended Changes to Publications and Blank Forms) directly to APVR-WLB-CO.

1. Purpose

This regulation's purpose is prescribe policies and procedures to prevent cold injuries and to ensure that various measures are taken during extreme arctic conditions to preserve troop safety.

2. References

Appendix A lists required and related publications. Appendix A also lists referenced forms.

3. Explanation of abbreviations and terms

a. Abbreviations.

(1) AR..... Army Regulation

(2) C..... Centigrade

(3) CTA ..... Common Table of Allowances

(4) CWI ..... cold weather indoctrination

(5) DA..... Department of the Army

***This regulation supersedes 6th Infantry Division (Light) Regulation 40-5, dated 24 August 1990.**

(6) F ..... Fahrenheit

(7) FM ..... Field Manual

(8) MEDDAC-AK... Medical Department Activity, Alaska

(9) PA..... physician's assistant

(10) para ..... paragraph

(11) TA-50..... common reference for clothing/equipment issued per Common Table of Allowances (CTA) 50-900.

(12) TB..... Technical Bulletin

(13) TC..... Training Circular

(14) U.S..... United States

(15) USARAK..... United States Army Alaska

b. Terms. When used in this regulation—

(1) "Shall," "must," and "will" indicate a standard, condition, or procedure that must be met to comply with this and other regulations.

(2) "May," "should," and "is recommended" indicate a standard, condition, or procedure from which one may deviate, for good and sufficient reason, without violating this regulation's provisions. A decision to deviate from this regulation's recommended procedures warrants the user's or other responsible individual in a leadership position's careful consideration.

4. Responsibilities

a. Commanders and leaders at all levels. Cold injury prevention is a command responsibility. In peacetime, health and welfare of soldiers transcend all else, and there is no excuse for cold injuries. Leaders should use preventive medicine countermeasures, planning to prevent cold injury and fulfilling Field Manual (FM) 21-10's guidelines. (Use field sanitation teams, medics, USARAK Preventive Medicine and Medical Department Activity-Alaska (MEDDAC-AK) Preventive Medicine to train individuals and their leaders in preventive medicine countermeasures against the cold.) During arctic operations, all leaders must constantly check their troops and the "buddy system" must be used. If this is done and common sense is used, there will be no cold weather injuries. This is the command's goal—NO COLD INJURIES!

b. Post commanders. Post commanders will distribute cold injury prevention information to family members and civilian employees at each winter season's beginning. They will coordinate with on post school officials to ensure that school children also received this information.

c. Medical Department Activity-Alaska. MEDDAC-AK Preventive Medicine will collect, analyze, and report cold injury case experience in the consolidated Command Health Report (RCS-MED-3 (R6)).

5. Cold injury prevention

Cold injuries are preventable. Officers and noncommissioned officers must inspect and enforce the proper use of simple measures that will markedly reduce cold injury incidents. Well-trained and disciplined soldiers suffer less from the cold, as they are better able to care for themselves through personal hygiene, foot care, proper clothing, extremity exercise in pinned-down positions, and similar effective measures.

6. Preventive measures

Commanders at all levels will include the following measures in their cold injury prevention programs:

a. Per USARAK Regulation 350-1, institute a formal cold weather indoctrination (CWI) training program at unit level. All personnel assigned to USARAK in grades O5 and below will receive CWI orientation before they participate in any field training conducted during the winter season (October through April).

b. Ensure each soldier is issued Training Circular (TC) 21-3.

c. Ensure that each soldier is issued all mandatory and discretionary winter/arctic clothing and equipment items as authorized. Each item must be checked for local climate suitability, with emphasis on proper individual fit.

d. During the cold season, distribute daily official wind and temperature forecasts to help personnel plan daily operations. Table B-1 shows a wind chill chart that is important in evaluating weather information (see para 8). The official cold season is October through April, but personnel must be aware of the cold weather injury possibilities that can occur before and after this period.

e. Establish warm-up tents, rooms, or dugouts in locations accessible to personnel exposed to cold.

f. Relieve and rotate soldiers as determined appropriate, based upon exposure to cold and dampness. Special attention must be given to personnel assigned relatively stationary duties, such as guards in defensive positions (listening post/observation post) or at check points.

g. Before any training in extreme arctic conditions (Cold Injury Risk Hazard Category IV) the unit's field sanitation team(s) will conduct refresher CWI for all participants before deployment. At a minimum, the following subjects will be reviewed:

(1) Cold injury causes, symptoms, and prevention.

(2) Personal clothing and TA-50 proper fit, serviceability, and wear.

(3) Personal hygiene per TC 21-3.

(4) Food and liquid intake, stressing the consumption of a minimum of 3.5 quarts of liquids a day and eating nourishing foods/rations during extreme arctic conditions.

(5) Personal and leader responsibilities with regard to cold weather injury prevention and recognition.

(6) Buddy system.

(7) Carbon monoxide hazards, as well as other cold weather-related safety hazards.

(8) Buddy first aid for cold injuries per FM 21-10.

h. Before and during field exercises, the chain of command will perform a complete equipment inspection to ensure that every soldier's equipment is complete, serviceable, and used correctly.

i. Once deployed, adhere to the procedures listed below during extreme arctic condition periods (Cold Injury Risk Hazard Category IV):

(1) Schedule 10-minute exercise breaks at least hourly during troop movements in unheated vehicles.

(2) Before any significant move on foot, soldiers will receive adequate hot food and liquids to sustain them during the move. Supplemental food and water will be available for consumption en route.

(3) No foot movement will extend beyond 4 to 6 hours. At this time, all troops will be warmed up in their squad tents. Leaders and/or medics will conduct a thorough inspection to detect any cold injuries. **Asking soldiers if they have a problem is not sufficient.** Leaders and/or medics must personally visually inspect feet, hands, and faces. Any indication of frostbite dictates immediate evacuation to the battalion aid station. Leaders must also ensure troops change wet socks during these inspections or they will suffer cold injury even though wearing vapor barrier boots.

(4) Before resuming foot movement, leaders must ensure that troops "carb-up" with high calorie food and "fill-up" with liquid. Canteens must be thawed and filled to ensure a ready water supply once the move is resumed.

(5) Soldiers doing strenuous work must be directed to loosen or remove clothing to prevent sweating, even when temperatures are well below 0 degrees Fahrenheit (F).

j. Assigned medical personnel and field sanitation teams should be maximized to assist leaders in developing and conducting cold weather injury prevention training programs. All training should stress that cold injury can also occur during off duty activities and that it is an individual responsibility to prevent such accidents by wearing proper clothing and observing other precautions.

k. Maintain current information regarding weather conditions that may cause an unacceptable cold injury risk. Frequent drops of 20 to 30 degrees in a few hours are not uncommon. The following guidelines are provided to aid commanders in assessing the cold injury risk associated with physical readiness and tactical training during cold weather:

(1) Ambient temperature. Ambient temperature applies only to dry clothing. There is an increased injury risk to exposed flesh at these temperatures, or if clothing becomes wet. See table C-1.

(2) Wind chill. Once clothing becomes wet from perspiration, water, fuel, antifreeze, or other substance, it loses insulating qualities and acts as an extension of the skin. Under these circumstances, or if there is exposed flesh (such as when conducting physical tests with hands, face, and ears exposed), the temperature referred to in paragraph (1) above must be equivalent to that taken from the wind chill chart rather than the ambient temperatures (see table B-1).

(3) Weather. Predicting low temperature duration; the possibility of snow, rain, dew or frost; wind conditions; and the degree of personnel exposure to these conditions should be considered in planning cold weather operations.

(4) State of winter training and discipline. Individual and unit training and experience in cold weather are the best assurances against cold injury. As personnel gain experience in cold weather conditions, their ability to perform the mission increases. Commanders must be aware of new personnel in their units or individuals who may be at higher risk of sustaining cold injury due to previous cold injuries or lack of experience in the field during cold weather.

7. Supervision

Most cold injuries involve the hands, feet, face, nose, and ears. The key to preventing these injuries is alertness and command supervision by the immediate unit commanders and their noncommissioned officers. Personal attention to, or preferably daily inspection for, the following is the most important factor in preventing cold injuries:

a. Wearing sufficient dry, clean clothing for the weather conditions.

b. Reducing unprotected hand, face, or ear exposure in extreme cold.

c. Eliminating stationary standing without exercise for extended time periods while exposed to cold and dampness.

d. Ensuring normal foot hygiene. For example, changing damp or soiled socks and removing foot gear for airing at least once a day.

e. Proper footwear fitting, loose lacing of shoes, and loose trouser blousing.

f. Requiring vapor barrier boot wear when necessary due to cold and dampness.

8. Wind chill

a. The human body is continually producing and losing heat. Wind increases heat loss by reducing the thin, warm air layer next to the skin. This loss increases as the wind speed increases.

b. Table B-1 is a wind chill chart showing the wind's cooling power on exposed flesh. It gives the equivalent cooling rate as compared to what would be experienced under calm conditions at a lower temperature. No matter how great the wind velocity, exposed flesh will not freeze as long as the wind temperature remains above freezing. This statement applies only to dry skin (moisture introduces the added factor of cooling by evaporation). Trench foot and immersion foot may occur at any point on the chart.

c. Any movement of air past the body has the same cooling effect as wind. Walking, running, skiing, or riding in open vehicles may cause this. Consider the speed of movement, along with natural wind, when using a wind chill chart.

9. First aid

a. If cold injury occurs, restrict the patient from their usual duties or activities until the injury's severity can be evaluated. A physician assistant (PA) or a doctor should look at the injury as soon as possible.

b. Remove all constricting items of clothing such as boots, socks, or gloves from the injury site. Protect the injured area from further cold injury with blankets or any available clothing that is not constricting.

c. Prohibit smoking, alcohol consumption, and application of medication, salves, or ointments. Do not open blisters. Encourage hot liquid consumption.

d. If the injury involves the lower extremity, treat the victim as a litter patient with the injured part level or slightly elevated. In unusual circumstances where travel on foot is the only means of evacuation for frostbitten feet, do not initiate thawing the injurec area until the patient reaches a battalion aid station and is under medical supervision.

e. When a soldier is evacuated to the battalion aid station for suspected cold weather injury, PAs will ensure that proper treatment procedures are followed. No soldier will be returned to field duty with any cold weather injury until they are fully recovered and have PA- or medical officer-approval. If limited duty is prescribed, the PA or medical officer must indicate the limitation parameters. The unit commander must ensure that those limitations are complied with to the letter.

10. Reporting

a. In all diagnosed cold injury cases, regardless of how slight, do the following:

(1) The first medical treatment facility (battalion aid station, emergency room, troop medical clinic, health clinic, outpatient clinic, etc.) will initiate a USARAK Form 80 (Cold Injury Report) in duplicate. The original copy is placed in the local preventive medicine within 24 hours.

(2) The local preventive medicine will make copies of the completed USARAK Form 80 and distribute them as follows:

(a) The chief of MEDDAC-AK Preventive Medicine at Fort Wainwright.

(b) The Brigade Surgeon Office at Fort Wainwright.

(c) The safety manager at Fort Richardson.

(d) The local preventive medicine files at Forts Richardson, Wainwright, or Greely.

(e) If the patient is hospitalized, a copy must be placed in the inpatient record via the patient administration division at Bassett Army Community Hospital or Elmendorf Air Force Base Hospital.

b. MEDDAC-AK Patient Administration will promptly submit a special telegraphic report (RCS-MED-16 (R3)(MIN)) per Army Regulation (AR) 40-418.

c. Submit all lost-time injuries on DA Form 285 (United States Army Accident Report) per AR 385-40.

FOR THE COMMANDER:

OFFICIAL:

CHARLES R. DEWITT
LTC, AD
Chief of Staff

//Original Signed//
FREDRICK J. LEHMAN
LTC, SC
Director of Information Management

DISTRIBUTION:
A Plus
25 - APVR-WLB-CO (Brigade Surgeon)
25 - APVR-RIM-ASD-PB
5 - MOS Library (Building 600, Fort Richardson)
5 - MOS Library (Army Education Center, Building 21-10 (Fort Wainwright))
3 - APVR-RIM-ASD-WB
1 - APVR-GPA-AE (MOS Library, Assistant Directorate of Community Activities, Education Branch, Attention: Mr. Mauer)
1 - Commander, United States Army Pacific Command, Attention: APIM-OIR
Fort Shafter, Hawaii 96858-5100

Appendix A
References

Section I
Referenced Publications

AR 40-418.....(Medical Statistical Reporting). Cited in paragraph 10b.

AR 385-40.....(Accident Reporting and Records). Cited in paragraph 10c.

USARAK Regulation 350-1.....(United States Army Alaska Training Directive). Cited in paragraph 6a.

Section II
Related Publications

(Related publications are merely sources of additional information. The user does not have to read them to understand this regulation.)

AR 40-5.....(Preventive Medicine).

CTA 50-900 .....(Clothing and Individual Equipment).

FM 21-10 .....(Field Hygiene and Sanitation).

FM 21-11 .....(First Aid for Soldiers).

FM 31-70 .....(Basic Cold Weather Manual).

FM 31-71 .....(Northern Operations).

TC 21-3.....(Soldier's Handbook for Individual Operations and Survival in Cold Weather Areas).

Technical Bulletin (TB) Med 288 .....(Medical Problems of Man at High Terrestrial Elevations).

United States Army Environmental Hygiene Agency Technical Guide 172.....(Cold Injury).

Section II
Referenced Forms

DA Form 285 .....(United States Army Accident Report). Cited in paragraph 10c.

DA Form 2028 .....(Recommended Changes to Publications and Blank Forms). Cited in the suggested improvements statement.

USARAK Form 80 .....(Cold Injury Report). Cited in paragraph 10a.

Appendix B
Wind Chill Chart

B-1. Instructions

Measure local temperature and wind speed if possible, if not, estimate. Enter the table at the closest temperature interval along the top, with the appropriate wind speed along the left side. The intersection gives approximate equivalent chill factor temperature. That is, the temperature that would cause the same rate of cooling under calm conditions. Regardless of the cooling rate, you do not cool below the actual air temperature unless wet.

B-2. Notes

Wind may be calm but freezing danger is greater if person is exposed in a moving vehicle, under helicopter rotors, or in a propeller blast, etc. It is the rate of relative air movement that counts and the cooling effect is the same whether you are moving through the air or it is blowing past you. The wind's effect will be less if even slight protection is provided for exposed flesh. Common sense has no substitute, and the table B-1 serves as a guide to the wind's cooling effect on exposed flesh when the person is first exposed. General body cooling and many other factors affect cold injury risk.

Table B-1
Wind chill chart (cooling power of wind on exposed flesh expressed as an equivalent temperature (under calm conditions))

Estimated wind speed (in miles per hour)	Actual Thermometer Reading (degrees Fahrenheit)											
	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
	Equivalent Temperature (degrees Fahrenheit)											
calm	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
5	48	37	27	16	6	-5	-15	-26	-36	-47	-57	-68
10	40	28	16	4	-9	-24	-33	-45	-58	-70	-83	-95
15	36	22	9	-5	-18	-32	-45	-58	-72	-85	-99	-112
20	32	18	4	-10	-25	-39	-58	-67	-82	-96	-110	-124
25	30	16	0	-15	-29	-44	-59	-74	-88	-104	-118	-133
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109	-125	-140
35	27	11	-4	-21	-35	-51	-67	-82	-98	-113	-129	-140
40	26	10	-6	-21	-37	-53	-69	-85	-100	-116	-132	-148
(Wind speed more than 40 miles per hour have little additional effect.)	*Little Danger* (for properly clothed person) Maximum danger of false sense of security.				*Increasing Danger* Danger from freezing of exposed flesh			*Great Danger* Flesh may freeze in 30 seconds.				
	Trench foot and immersion foot may occur at any point on this chart.											

Appendix C
Ambient Temperature

Table C-1 show cold injury risk hazard at ambient temperature categories.

Table C-1
Ambient temperature—cold injury risk hazard

Category	Temperature Range	Risk Reduction Guidelines
0	33 degrees F or warmer (1 degree C or warmer)	Little risk of cold injury provided clothing, especially footwear, is kept dry.
I	32 to 20 degrees F to (0 to -6 degrees C)	Little cold injury risk if winter clothing normally issued within Alaska is correctly worn and kept dry. Hands, ears, and feet are vulnerable to cold injury if clothing becomes wet.
II	19 to 16 degrees F (-7 to -9 degrees C)	Risk as defined above, except that: 1) guards or other physically inactive personnel are at increased risk (shortening the exposure period for such personnel or using warm-up facilities reduces risk); and 2) personnel with exposed flesh during physical training at temperatures below 20 degrees F (-6 degrees C) are at higher risk (protective clothing for hands, face, and ears must be worn and continuous, close command supervision is required when physical training is conducted).
III	15 to -24 degrees F (-9 to -31 degrees C)	Cold injury risk is high among exposed troops not (or improperly) wearing winter/arctic clothing. Continuous, close command supervision and careful attention to the condition of exposed personnel is required. Prompt action to remove individuals from the cold or to warm affected parts may be required to forestall cold injury.
IV	-25 degrees F or colder (-32 degrees C or colder)	Temperatures below -25 degrees F (-32 degrees C) are defined as extreme arctic conditions. Cold injury risk among exposed troops wearing arctic clothing can be high. Continuous, close command supervision and careful attention to exposed soldiers are required. Immediate actions to forestall cold injury are as stated above. Under extreme circumstances, training curtailment or cancellation may be warranted.

Legend: C—Centigrade